CASE REPORTS

Malaria Transmission Among Narcotic Addicts

A Report of Ten Cases and Review of the Literature

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THE TRANSMISSION OF MALARIA between human hosts without a mosquito vector was first reported in 1884 by Gerhardt,[1] and such transmission is now well recognized; intentional malaria infestation by the parenteral route comprises a well known era in medicine, accidental transmission by whole blood transfusion is well documented,[2,3] and transplacental malaria has been reported.[4] The first cases of accidental transmission between narcotic addicts were reported in 1929 by Biggam[5] who reported ten cases of falciparum malaria contracted by the sharing of needles by heroin users in Cairo. Between 1933 and the early 1940's several reports of additional cases of malaria among addicts were reported. No such cases were reported after 1942.

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Recently we have observed ten cases of malaria due to the common use of needles by heroin addicts. None of the persons involved had been in foreign countries, all had been using heroin for at least one year, and all had injected heroin in the six weeks before seeking medical advice because of malarial symptoms. Five of these ten cases are presented here.

Reports of Cases

Case 1. A 25-year-old Mexican man came to Kern General Hospital with complaint of chills and fever accompanied by diaphoresis for five weeks. Initial evaluation led to an admitting impression of serum hepatitis. The patient was noted to have hepatosplenomegaly and scleral icterus. A test for Australia antigen was positive. However, routine examination of the peripheral blood smear revealed Plasmodium vivax parasites. The patient said he had been using heroin for a year and had last injected it two weeks before admission.

Case 2. A 21-year-old Caucasian man was seen two days after the patient in Case 1 with complaint of weight loss, recurrent chills and fever 40° C (104° F) occurring at 6:00 p.m. every two days for the preceding five weeks. On preliminary examination scleral icterus, temperature of 40.5° C (105° F) and splenomegaly were noted. Initial impression was fever of unknown origin. Examination of peripheral blood showed ring forms of P. vivax. The patient last used heroin two days before admission. He had positive reaction for Australia antigen.

Case 3. A 24-year-old Mexican man had chills and fever for six weeks while being held by authorities for the use and sale of heroin. He was brought to Kern General Hospital. Mild scleral icterus, temperature of 39.5° C (103° F) and hepatosplenomegaly were noted. A smear of peripheral blood was immediately obtained

and P. vivax was found. The patient had last taken heroin eight weeks before hospital admission. Australia antigen studies were negative.

Case 4. The patient, a 19-year-old sister of the patient in Case 3, admitted sharing needles with her brother, and she also had had chills and fever for the past month but had not sought medical attention. Examination of the peripheral blood also revealed P. vivax parasites and she was admitted to the hospital. No icterus was noted but the spleen and the liver were enlarged. A test for Australia antigen was negative.

Case 5. The 20-year-old wife of the patient in Case 3 wrote to her husband during his stay in hospital, complaining to him that she had been sick with chills and fever. Since she was living 200 miles away at the time, a phone call was made to her and she was asked to report to her local county hospital. Instead, she came to an office of the Kern County Health Department and from there was transported to the hospital. She also was found to have temperature of 40° C (104° F) and significant hepatosplenomegaly. Examination of the peripheral blood revealed vivax malaria. Australia antigen studies were negative.

Discussion

Since the previously mentioned ten cases, additional cases are being found in our community. To date all such cases have been among heroin addicts and all have been due to P. vivax. Three of the cases here reported were definitely related —those in the man, wife and sister who shared their needles. The other patients have not admitted to a clear interrelating path of infection. The average time of onset of symptoms was two to three weeks following the suspected exposure and most of the patients were symptomatic for five to six weeks before seeking medical attention. In most of the cases the diagnosis was made by noting parasites on a routine Wright-stained peripheral smear obtained following a suggestive history. In all cases the parasites were first noted by a laboratory technician and the observation later confirmed by a pathologist.

The patients were all treated with the following regimen: chloroquin hydrochloride (Aralen® hydrochloride), 1 gram by mouth initially followed by 500 mg in six hours, then 500 mg every morning for two days. Primaquin phosphate (Primaquin® phosphate), the tissue antimalarial, was not used because the tissue phase of infectivity in vivax malaria is avoided if transmission is by other than the mosquito vector.

The ten cases came to light in only ten days of investigation, and we expect this problem to increase in our addict population before all carriers are detected and treated.

A review of the literature turned up reports of a total of 522 cases of malarial transfer by needles. This total came from ten separate reports,[6-15] with the largest series from New York City and from Chicago in the early 1930's. These were predominantly cases of falciparum malaria. When all world cases were surveyed, the same trend was noted: 38 (7 percent) of all cases were caused by P. vivax, 271 (52 percent) by P. falciparum, six cases (1 percent) by P. malariae, and 207 (40 percent) by unspecified species. We were unable to find any reports of P. ovale transmission by this route.

Because of the malignant nature of P. falciparum, we feel the high relative incidence of reports of this form of the disease in this population might be due to the necessity of seeking medical attention, as persons with other forms of the disease might be inclined to ignore their milder symptoms. The mortality noted in the review of 522 cases was higher[16] than would be expected in populations acquiring the same disease through natural vectors. This again may be partly attributable to the high incidence of falciparum malaria in the cases reported.

No such cases were reported during this country's involvement in Korea, and it is quite surprising that no previous cases of this nature have been reported since military operations in Southeast Asia began more than ten years ago. Our series is most likely related to a Vietnam returnee. In all of our cases P. vivax was the infecting organism. Eighty percent of the malaria among soldiers in Vietnam is due to P. falciparum, but 80 percent of malaria in soldiers returning to the continental United States is due to P. vivax because of the persistent asymptomatic extraerythrocytic stage.[17] Almost 4,000 cases of malaria were documented among servicemen returned from Vietnam in 1969.[18]

Malaria, like serum hepatitis, may reach significant proportions in this era of prevalent drug abuse. In this regard we have found tests for

Australia antigen helpful in detecting patients who may have both diseases, as the clinical manifestations of one might easily mask those of the other. Malaria among narcotic addicts appears to be a renewed clinical problem of which physicians should be aware, especially in addicts who might present with bizarre symptoms or with fever of undertermined cause.

Summary

Vivax malaria was observed in ten heroin addicts who admitted to the sharing of needles. None had traveled outside the United States. It was suspected that these cases are related to a Vietnam returnee, although this was not definitely established. All cases were diagnosed by routine peripheral smears. In view of our military involvement in Vietnam and the prevalent use of drugs in the civilian population being joined by returning servicemen, clinicians should be alerted to the problem.

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Duodenocolic Fistula

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A NON-MALIGNANT CONNECTION between the duodenum and the colon is a rare condition of diverse causes. The anatomic proximity of the two structures allows disease or injury of either to result in fistula formation, occasionally in combination with a third structure, the appendix or the gallbladder. The unique and the rather distinguishing clinical features of this condition have led to the report of the present case and the review of other reports.

Incidence

Despite the anatomic nearness of the duodenum and the colon, fistula formation is quite rare. In most of the cases in which it does occur it is due to malignant disease (Medhurst, 1956).[1] Non-malignant fistula was reported only 27 times between 1863, when Sanderson reported the first such case, and 1966 when Brindle and Kane[2] added two cases and surveyed the literature to that time. In the same year, another case was reported, by Trickey and Dorling.[3] The present case is the only one reported since. Undoubtedly there are many cases not reported, yet the condition is so rare that few surgeons have seen one.

Etiology

The most common cause of this fistula is duodenal ulcer disease (Table 1). The fistula may develop insidiously from direct extension of the ulcer crater, or it may occur secondary to a perforation and abscess formation, as reported by Starzl (1959).[4] Foreign body penetration was reported by Rosenqvist (1955)[5] and Trickey (1966).[3] Tuberculosis involving abdominal lymph nodes with caseous necrosis and fistula formation was a factor in five instances. Fistula secondary to ulcerative colitis has been reported twice, and to regional enteritis twice—somewhat surprising since fistulas elsewhere in the gastro-

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